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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/743,002	11/01/1996	HERBERT DAMSOHN	027/43042	3122

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EXAMINER
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LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 06/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

08/743,002

Applicant(s)

Damsohn et al.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on May 28, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 22, 31-35, and 38 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22, 31-35, and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 28, 2002 has been entered.

Claims 22, 31-35 and 38 are pending, claim 32 remains withdrawn.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22, 31 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karbach et al in view of Brzezinski and Melnyk et al.

Karchach et al discloses all the claimed limitations except lugs directly attached to the tube walls nor latticed tube bottoms.

Brzezinski discloses a heat exchanger comprising a tube 1 having opposed walls 8, 9 and a turbulating insert 5 with lugs 15 thereon; wherein the prior art welded the lugs directly to the tube

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walls (column 1, lines 57-64) for the purpose of minimizing material and weight of the heat exchanger.

Melnyk et al discloses a heat exchanger comprising a shell 12 joined to latticed tube bottoms 24 receiving a plurality of tubes 18 for the purpose of providing a fluid tight manifold.

Since Karbach et al and Brzezinski are both from the same field of endeavor and/or analogous art, the purpose disclosed by Brzezinski would have been recognized in the pertinent art of Karbach et al.

Since Karbach et al and Melnyk et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Melnyk et al would have been recognized in the pertinent art of Karbach et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Karbach et al lugs directly welded to the tube walls for the purpose of minimizing material and weight of the heat exchanger as recognized by Brzezinski, *and* latticed tube bottoms receiving a plurality of tubes for the purpose of providing a fluid tight manifold as recognized by Melnyk et al. Although Melnyk et al discloses the tube bottoms are brazed, one of ordinary skill in the art would employ welding to achieve stronger joints. In the combination, Karbach et al discloses insert 12 (Figure 1a and 2-3) providing upper and lower lugs 21, 22 on opposite tube walls 13. The modification as taught by Brzezinski would “directly attach” the lugs on opposite tube wall, in order to not to destroy the primary reference of Karbach et al.

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Regarding claim 31, Karbach et al discloses the elements are welded (column 5, lines 29-30).

Regarding claim 38, the tube bottoms 24 of Melnyk et al are preformed, since the tubes 18 are inserted therein.

Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karbach et al in view of Brzezinski and Melnyk et al as applied to claims 22, 31 and 38 above, and further in view of Kim.

The combined teachings of Karbach et al, Brzezinski and Melnyk et al lacks tubes having spacing elements.

Kim discloses a heat exchanger comprising a shell joined to lattice bottoms 2 receiving a plurality of tubes 1; wherein the tubes have spacing elements 3 for the purpose of providing support.

Since Karbach et al and Kim are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kim would have been recognized in the pertinent art of Karbach et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Karbach et al tubes having spacing elements for the purpose of providing support as recognized by Kim.

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Regarding claim 34, it has been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Claims 22, 31 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karbach et al in view of Scala and Melnyk et al.

Karchach et al discloses all the claimed limitations except lugs directly attached to the tube walls nor latticed tube bottoms.

Scala discloses a heat exchanger comprising a tube 10 having opposed walls 20, 24 and turbulating lugs 25-27 welded thereon for the purpose of minimizing material and weight of the heat exchanger.

Melnyk et al discloses a heat exchanger comprising a shell 12 joined to latticed tube bottoms 24 receiving a plurality of tubes 18 for the purpose of providing a fluid tight manifold.

Since Karbach et al and Scala are both from the same field of endeavor and/or analogous art, the purpose disclosed by Scala would have been recognized in the pertinent art of Karbach et al.

Since Karbach et al and Melnyk et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Melnyk et al would have been recognized in the pertinent art of Karbach et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Karbach et al lugs directly welded to the tube walls for the

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purpose of minimizing material and weight of the heat exchanger as recognized by Scala, *and* latticed tube bottoms receiving a plurality of tubes for the purpose of providing a fluid tight manifold as recognized by Melnyk et al. Although Melnyk et al discloses the tube bottoms are brazed, one of ordinary skill in the art would employ welding to achieve stronger joints. In the combination, Karbach et al discloses insert 12 (Figure 1a and 2-3) providing upper and lower lugs 21, 22 on opposite tube walls 13. The modification as taught by Scala would “directly attach” the lugs on opposite tube wall, in order to not to destroy the primary reference of Karbach et al.

Regarding claim 31, Karbach et al discloses the elements are welded (column 5, lines 29-30).

Regarding claim 38, the tube bottoms 24 of Melnyk et al are preformed, since the tubes 18 are inserted therein.

Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karbach et al in view of Scala and Melnyk et al as applied to claims 22, 31 and 38 above, and further in view of Kim, as applied above.

### ***Response to Arguments***

During the interview on May 21, 2002, the Examiner stated the proposed amendment would not be entered due to requiring further consideration, even though the combination of references were believed to meet the claimed limitations. Accordingly, this action is nonfinal.

Regarding applicants' remarks with respect to “rectangular” tubes, Karbach et al discloses two types of tubes, both being rectangular in cross-section (i.e. Figure 2 and 5).

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Applicants are believed to further recite and define this “rectangular” shape in the “lattice tube bottoms” in the body of the claim.

Regarding applicants’ remarks with respect to Brzezinski, a “heat exchanger” is a broad term for a device where heat is conducted between two differing temperature sources. The laws of thermodynamics clearly define heat transfer equations between any two differing temperatures, where variables for materials and fluids are appropriately incorporated. For example, a heat sink for a computer chip is clearly a “heat exchanger,” even though heat is transferred between a hot component (i.e. non-fluid and air or liquid (i.e. fluid). In the device of Brzezinski, working fluid 7 is supplied into the device 2, which defines a rectangular tube, per se. It is unclear why applicants do not recognize the device of Brzezinski is a heat exchanger. What does the working fluid 7 do in the device of Brzezinski? Why does Brzezinski flow the working fluid through the device? The working fluid 7 absorbs heat absorbed from plate 9. The device of Brzezinski exchanges heat, and is a “heat exchanger.”

Furthermore, the structure of Brzezinski is clearly pertinent to Karbach et al, in that *“the fins tend to act as turbulators increasing turbulence of the fluid and thereby increasing the effectiveness of heat transfer from the panel surfaces to the working fluid.”* One of ordinary skill in the art would recognize Brzezinski (column 1, lines 33-64) discloses a heat exchanger defining a tube or conduit for a working fluid, where “upstanding fins” “... are positioned normal to the [absorbing] plate ...” “... act as turbulators ...” and “are provided with a number of tabs projecting downwardly ... from the lower edge of the fins ... for



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attaching the fins to the plate.” The modification relied upon is “these [prior art] *methods of construction* require that the fins and plate be separately fabricated, and that an additional fabrication step be required to join the fins and plate together (emphasis added).” In summary of the above excerpt, in the prior art of Brzezinski, not the invention of Brzezinski, fins are attached directly to a plate forming a wall of the tube (e.g. as in applicants’ instant invention), whereas the instant invention of Brzezinski discloses attaching lugs to a plate 9 (e.g. deforming lugs from the plate), which in turn is inserted into the tube 2.

Regarding the secondary reference of Scala as applied above, Scala discloses a heat exchanger having a plurality of baffle lugs 25-27 welded to the tube wall 24. The structure is clearly depicted and disclosed and believed not open to interpretation.

Regarding applicants’ remarks with respect to Melnyk et al, as noted above, the Examiner agrees the tubes of Melnyk et al are brazed. However, applicants do not argue that welding is not well known in the art to be stronger than brazing, and the substitution of one for the other does not require routine skill in the art. Arguendo, Karbach et al discloses the elements are welded instead of brazing (column 5, lines 29-30).

The rejection in view of Kim is deemed correct for lack of any arguments to the contrary by applicants.

### ***Conclusion***

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms)

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should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648.

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.



LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3743

June 17, 2002